

WHAT IS CLAIMED IS:

1. A mapping device comprising:

a detecting unit including a reflecting member reflecting a projected light traveling in an incident direction in a reflecting direction opposite the incident direction, and an optical sensing unit including a light projector projecting a light onto the reflecting member and a light receiver receiving the light projected by the light projector and reflected by the reflecting member, the light projector and the light receiver being combined in a unitary unit, the detecting unit being configured to move relative to a plate-shaped object in a moving direction intersecting an optical path along which the light projected by the light projector travels to the light receiver so that the plate-shaped object lies in a moving region of the optical path;

a position information acquiring means for acquiring a position information about a position of the plate-shaped object relative to the detecting unit; and

an arithmetic means for calculating a mapping information about an arrangement of the plate-shaped object based on the position information provided by the position information acquiring means and a light-reception information provided by the light receiver.

2. The mapping device according to claim 1, wherein the reflecting member is formed in a shape of a band.

3. The mapping device according to claim 1, wherein the light projected by the light projector is a visible light.

4. The mapping device according to claim 2, wherein the light projected by the light projector is a visible light.

5. The mapping device according to claim 1, wherein the light projected by the light projector is a

linearly polarized light that oscillates in a predetermined first direction,

the light received by the light receiver is a polarized light oscillating only in a predetermined second direction, and

the reflecting member receives an incident light oscillating in the first direction and reflects the incident light as a reflected light oscillating in the second direction.

6. The mapping device according to claim 2, wherein the light projected by the light projector is a linearly polarized light that oscillates in a predetermined first direction,

the light received by the light receiver is a polarized light oscillating only in a predetermined second direction, and

the reflecting member receives an incident light oscillating in the first direction and reflects the incident light as a reflected light oscillating in the second direction.

7. The mapping device according to claim 3, wherein the light projected by the light projector is a linearly polarized light that oscillates in a predetermined first direction,

the light received by the light receiver is a polarized light oscillating only in a predetermined second direction, and

the reflecting member receives an incident light oscillating in the first direction and reflects the incident light as a reflected light oscillating in the second direction.

8. The mapping device according to claim 4, wherein the light projected by the light projector is a linearly polarized light that oscillates in a predetermined first direction,

the light received by the light receiver is a

polarized light oscillating only in a predetermined second direction, and

the reflecting member receives an incident light oscillating in the first direction and reflects the incident light as a reflected light oscillating in the second direction.

9. A robot for carrying a plate-shaped object comprising:

a hand configured to be moved together with the plate-shaped object; and

a mapping device according to claim 1 mounted on the hand.

10. The robot according to claim 9, further comprising hand position detecting means for obtaining a position information about the robot hand,

wherein the position information acquiring means receives the position information about the hand from the hand position detecting means.

11. The robot according to claim 10, further comprising a drive motor configured to move the hand,

wherein the hand position detecting means includes an encoder configured to detect a rotational state of the drive motor.